**Natural Resources Conservation Service**

**NC Forage and Pasture Technical Note No. 3**

**Field Data Collection Sheets for Grazing Planning**

This document contains questions that must be addressed before a planner can develop a useful whole farm grazing plan for the client. These forms are not part of the grazing plan and don't they have to be in the case file, but these results, combined with the NC PCS Score Card evaluation, are essential for answering questions to determine the current forage-animal balance, and can be used for C-Graz data input.

**Understanding the client's goals for the farm and resources.** Assessment of a client's goals and objectives is an essential component to complete the Collection and Analysis phase of the Conservation Planning Process. Documenting goals and objectives may serve to guide current planning and to enable future evaluations of conservation and management success.

1. Become aware of factors which can impact the client's ability to reach his goals and those that will protect the natural resources. A good understanding of the client's goals, interests, and alternatives will be helpful in making a successful plan. A successful plan is one whose implementation provides a high level of conservation management and producer satisfaction with the results. Working relationships, building technical and personal credibility, personal "attitude," and client integrity can impact the desire to implement the plan.

2. Information the client may want to obtain from the conservation planner during the planning process, and that will be outlined in a grazing plan. The grazing plan may change and progress to advancing management levels over time.
   a. What combination of forage species should be used on the farm?
   b. When (months) is demand for feed expected to be above the production of feed on the farm?
   c. How much stored feed should be brought in to meet the herd demands and how will this affect the ability to protect the resources during extended feeding periods?
   d. How can animal production cycles, marketing and herd management alter the monthly feed balance and resource protection?
   e. What are the priority management decisions that need to be made to graze as many days as possible each year?
   f. What is the most suitable pasture design (size, shape, and location) to allow flexibility in management?
   g. Where are the most practical locations for "sacrifice areas" to be used for feeding when grazing is not available?
   h. What conservation practices might be needed to mitigate potential damage to the resources during times when grazed forage is not available?
   i. Where should drinking water tanks be located to encourage good forage utilization and manure/urine distribution on the land?
   j. Where is the most practical location for working facilities?
   k. How will the suggested plan affect farm production, animal performance, resource protection?
   l. How will the plan affect workload, operating expenses, and business sustainability?

**Non-Grazed Feed Inventory:**

In the following table record all kinds and amounts of feed and/or forage that will be used when grazing is not available on the farm.

C-Graz cannot be used to account for any harvested or stored forage. However, the planner should realize that a C-Graz yearly "balance" is determined by summation of the monthly deficits and surpluses. In other words, a yearly "balance" of "0" assumes that the sum of all monthly deficits were offset by the sum of all monthly surpluses. C-Graz sums all production from all fields by months and compares that to the herd demand each month, therefore the monthly deficits and balances will assume all acreage (including the hayland) was available to the herd in the months that it is grown. The planner and manager will have to subtract the monthly production from hayland if they want to know if there is sufficient forage available for grazing each month. That can easily be done by reviewing the production output table for the hayfields.

Recording the amount of stored forage that is used from the planned farm as compared to that which is "imported" from other places will aid in the planning for protection of resources since the longer the feeding period the more challenges there will be to protect the land and vegetation on the farm that is being used for the feeding period. Bringing in hay from other farms or fields or elsewhere will have an impact on nutrient loading and distribution on the grazed farm.

Table 1. Record information about the amounts and type of stored feed to be used on the farm and approximately when it will be used.

| Name of Supplemental Feed<br><br>(List any feed type that can be used, i.e., minerals, energy, protein, hay, by-products etc.) | Stored forage to meet monthly deficits for herd, Tons | | Expected Feeding Period, | |
|---|---|---|---|---|
| | Harvested forage from pastures. | Harvested from hayland or imported from off planned farm | Begin date | End Date |
| Hay i.e. fescue or bermuda | | | | |
| Silage. i.e. corn, sorghum | | | | |
| Corn or other feed grains | | | | |
| Soybean or Cottonseed meal | | | | |
| Soyhulls | | | | |
| Minerals | | | | |
| Other | | | | |

Table 2.

| **Field and Forage Information Sheet. Most of this informatin may be obtained from Farm Service Maps, Web Soil Survey and RYE Database. Pasture Condition Evlauations will be useful for adjusting current forage production and recording resource concerns.** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Entry Number** | **Tract #** | **Field #** | **Field Acres** | **Field Name** | **Soil Type: predominant in the field** | **Forage Name; Predominant in the field** | **Annual Forage Production/year: Current yield estimate:what % of potential RYE<br><br>lbs/acre** | **Grazing Efficiency (or Length of time it takes to graze the forage in the field to target height);<br>1-4 days ~<br>5-14 days<br>15-21 days<br>>21 days** | **# of Times Grazed per year** | **# of Times Harvested for hay** | **PCS notes recorded on CARD** |
| **1** | | | | | | | | | | | |
| **2** | | | | | | | | | | | |
| **3** | | | | | | | | | | | |
| **4** | | | | | | | | | | | |
| **5** | | | | | | | | | | | |
| **6** | | | | | | | | | | | |
| **7** | | | | | | | | | | | |
| **8** | | | | | | | | | | | |
| **9** | | | | | | | | | | | |
| **10** | | | | | | | | | | | |
| **11** | | | | | | | | | | | |
| **12** | | | | | | | | | | | |
| **13** | | | | | | | | | | | |
| **14** | | | | | | | | | | | |
| **15** | | | | | | | | | | | |
| **16** | | | | | | | | | | | |
| **17** | | | | | | | | | | | |
| **18** | | | | | | | | | | | |
| **19** | | | | | | | | | | | |
| **20** | | | | | | | | | | | |
| **21** | | | | | | | | | | | |
| **22** | | | | | | | | | | | |
| **23** | | | | | | | | | | | |
| **24** | | | | | | | | | | | |
| **25** | | | | | | | | | | | |

**Table 3.**

| Data for Growing animals such as stockers, replacement dairy heifers and withers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Group or Herd #** | **Animal Type** | **# Head** | **BCS, average for groups** | **Month brought onto the farm** | **Month sent off farm** | **Consumption, % body wt.** | **Beginning weight when brought onto farm: lbs/head** | **Ending market weight when sent off farm: lbs/head** |
| **1** | | | | | | | | |
| **2** | | | | | | | | |
| **3** | | | | | | | | |
| **4** | | | | | | | | |
| **5** | | | | | | | | |
| **6** | | | | | | | | |
| **7** | | | | | | | | |
| **8** | | | | | | | | |
| **9** | | | | | | | | |
| **10** | | | | | | | | |
| **Note** | For growing animals indicate starting weight and month of entry to the farm and month of departure for each group. If groups are brought to the farm monthly, then enter as separate herds with their average weight and date of arrival and departure. | | | | | | | |

Table 4.

| Input Data for Dairy Cows and Horses. Record the desired intake during each month based on % of body weight | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Herd or Group # | Animal Type: Horse or Dairy Cow | Weight | Head # | Jan | Feb | Mar | Apr | May | Jun | Jly | Aug | Sep | Oct | Nov | Dec |
| | | | | | Intake or forage consumption, % of Body Wt. | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |

Table 5.

| Animals with fairly constant daily needs (Bulls, Bucks, Rams) | | | | | |
|---|---|---|---|---|---|
| Group or Herd # | Animal Type | # Head | Weight: lbs | BCS, average for groups | Consumption, % body wt. |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |

Table 6.

| **Reproductive herd data.** Most of this information is related to the breeding herd and the female replacement animals. | | | **Answer items to left for each herd** | | | |
|---|---|---|---|---|---|---|
| Item | **Mature Reproductive Female Information** | **Supporting clarification** | **Herd 1** | **Herd 2** | **Herd 3** | **Herd 4** |
| 1 | Animal type | (Cow/calf; dairy cows, heifers/stockers; goats; sheep; horses) | | | | |
| 2 | Number of head | | | | | |
| 3 | BCS.. Body Condition Score | avg.for the herd; is not used in calculations, but useful for evaluating forage balance | | | | |
| 4 | Weight of animals in this herd type | | | | | |
| 5 | % of females birthing 1st month of birthing season | C-Graz assumes rest of herd have babies the 2nd month; enter females in groups that birth in 2-month intervals | | | | |
| 6 | Birthing efficiency for beef, goats, sheep | % of herd that will give birth each year | | | | |
| 7 | Month birthing begins | In C-Graz, the planner chooses month that animals start birthing and the % of herd that gives birth the first month; c-Graz assumes that rest of herd delivers babies the subsequent month. If birthing season is more than 60 days then enter as a separate herd the animals giving birth in any two month period. | | | | |
| 8 | Avg Number of kids or lambs/ birthing female | For kid and lamb requirements C-Graz determines DM needs based on number of babies per nursing mother. | | | | |
| 9 | Weaning month | C-Graz calculates feed demand through end of wean month: the exception is that replacement females kept from the herd will continue to have requirements calculated. If offspring are not moved off farm at weaning, then enter them as growing animals | | | | |
| 10 | Weaning weight, lbs for beef cattle only | | | | | |
| **Culling Information** | | | | | | |
| 11 | Culling of females that did not give birth, Number | | | | | |
| 12 | Month that non-birthing females are culled | | | | | |
| **Replacement Female information** | | | | | | |
| 13 | Are weaned females from herd kept as replacements | if yes, C-Graz assumes 50% more are kept through next birthing season; | | | | |
| 14 | Weight of Replacement females at culling date | usually this weight is the weaning weight, since culling is at weaning date | | | | |
| 15 | Are more replacement females kept than will go into herd? | Enter the number | | | | |
| 16 | If replacement females are purchased to add to herd or to resale | Enter the number | | | | |
| 17 | Month that replacement females are purchased or brought onto farm | | | | | |
| 18 | Weight of replacement females when brought to farm | | | | | |
| 19 | Estimated mature weight of the purchased replacement females | May be different, but usually is about the same as for mature females as recorded above. | | | | |
| 20 | Birthing month for the replacement females | | | | | |
| 21 | Weaning month for the replacement females | | | | | |
| 22 | Weaning weight for offspring from replacement females | | | | | |

**Pasture Condition Evaluation**

Complete the form on the following two pages for each pasture that shows any differences from others for even one category so that you can make logical and useful suggestions on how to manage each pasture in the system.

Pasture Condition Scores (PCS) are essential for establishing a basis for planning the grazing system. The benchmark scores will be useful to the client and the planner in setting priorities on management and facilitating conservation practices that will be needed to address resource concerns. This evaluation may also be useful to gauge success and changes in subsequent years. Use the "Score Card for Pasture Condition Evaluation" to record an assessment of the 10 "Indicators" of pasture condition.

This information collected while walking the pastures will be entered into C-Graz for record keeping purposes and it will be valuable in helping to making adjustments to the Realistic Yield Estimates that are the basis for determining a forage:animal balance.

USDA

# North Carolina Score Card for Pasture Condition Evaluation

**Farm Name:** **Date:**

| Indicators (with relative weight for determining score) | Weight factor | Pasture Number 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Multiply wt. factor by score to get weighted score | | | | | | | | | | | | | | | | | | | |
| **PERCENT DESIRABLE PLANTS (10%)** % of plant cover by weight that is desirable for domestic animals using the forage: | 1.0 | | | | | | | | | | | | | | | | | | | | |
| **1** <30 / **2** 30-50 / **3** 50-75 / **4** 75-90 / **5** >90 | | | | | | | | | | | | | | | | | | | | | |
| **SOIL COVER BY LIVE PLANTS (15%)** Live stems and green leaf cover by all species assuming 3" stubble hts: | 1.5 | | | | | | | | | | | | | | | | | | | | |
| **1** <40 / **2** 40-60 / **3** 60-75 / **4** 75-90 / **5** 90-100 | | | | | | | | | | | | | | | | | | | | | |
| **PLANT DIVERSITY (10%)** Diversity may be determined for each pasture or for the farm as a whole | 1.0 | | | | | | | | | | | | | | | | | | | | |
| **1** 1 dormant species: only warm or cool; not uniformly grazed due to palatability & distribution / **2** 2+ Species; only warm or cool; different palatability, distributed in patches / **3** min of 3 Species from warm or cool; well used. Or 1 cool & 1 warm / **4** 3-5 Species, 20% ea from warm & cool with 1 legume / **5** 4-5 Species, 20% ea from warm & cool, + 1 legume + 1 native | | | | | | | | | | | | | | | | | | | | | |
| **PLANT RESIDUE (3 %)** Ground cover of organic residue between plants or thickness of thatch (inch): | 0.3 | | | | | | | | | | | | | | | | | | | | |
| **1** 0%; >0.5"thatch / **2** 1-10% / **3** 10-20% / **4** 20-30% / **5** 30-70%; <.5"thatch | | | | | | | | | | | | | | | | | | | | | |
| **PLANT VIGOR (level of potential recovery post graze) (20%)** Degree of plant stress which affects recovery:If <4, score the factors on back page to determine reason for poor vigor. | 2.0 | | | | | | | | | | | | | | | | | | | | |
| **1** Very Slow / **2** Slow 3+wk lag / **3** Med 2+wk lag / **4** Rapid 1wk lag / **5** Optimum no lag | | | | | | | | | | | | | | | | | | | | | |
| **LEGUME CONTENT (5%)** Percentage of legume present as total dry weight: | 0.5 | | | | | | | | | | | | | | | | | | | | |
| **1** <10% or>60% / **2** 10-19% / **3** 20-29% / **4** 30-39% / **5** 40-60% | | | | | | | | | | | | | | | | | | | | | |
| **UNIFORMITY OF GRAZING (7%)** Estimate the extent of area showing spots or patch grazing in the pasture: | 0.7 | | | | | | | | | | | | | | | | | | | | |
| **1** >50% / **2** 25-50% / **3** 10-25% / **4** Few patches / **5** No patches | | | | | | | | | | | | | | | | | | | | | |
| **LIVESTOCK CONC. AREAS (10%)** Presence of livestock lounging or trails covers ?% of pasture and proximity to surface water: | 1.0 | | | | | | | | | | | | | | | | | | | | |
| **1** >10% / **2** 5-10% / **3** <5% / **4** Few / **5** None | | | | | | | | | | | | | | | | | | | | | |
| **SOIL COMPACTION (5%)** Probe moist soil compared to an ungrazed area beneath fence | 0.5 | | | | | | | | | | | | | | | | | | | | |
| **1** Very Severe / **2** Severe / **3** Moderate / **4** Slight / **5** None | | | | | | | | | | | | | | | | | | | | | |
| **EROSION (15%)** Consider all the following: Sheet, rill, gully, streambank, shoreline, or wind | 1.5 | | | | | | | | | | | | | | | | | | | | |
| **1** Very Severe / **2** Severe / **3** Moderate / **4** Slight / **5** None Visible | | | | | | | | | | | | | | | | | | | | | |
| **PASTURE CONDITION SCORE, total for each field based on weighted values** | | | | | | | | | | | | | | | | | | | | | |
| **Acres in each field** | | | | | | | | | | | | | | | | | | | | | |
| **Weighted score by acreage** | | | | | | | | | | | | | | | | | | | | | |

| FACTORS AFFECTING PLANT VIGOR, Used to identify causes of poor plant vigor (do not average these scores into previous page) | | | | | Pasture or field number | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| **P & K Status of soil** [1/]<br>Phosphorus and potassium status of the soil is: | | | | | | | | | | | | | | | | | | | | | | | | |
| **1**<br>Near Zero or Imbalanced | **2**<br>Severely Limiting | **3**<br>Moderately Limiting | **4**<br>Slightly Limiting | **5**<br>Not Limiting | | | | | | | | | | | | | | | | | | | | |
| **N Status in plant tissue** [1/]<br>Nitrogen status of the plant tissue is: | | | | | | | | | | | | | | | | | | | | | | | | |
| **1**<br>Yellow-Brown | **2**<br>Yellow-Pale Green | **3**<br>Pale Green | **4**<br>Pale-Natural Green | **5**<br>Natural Green | | | | | | | | | | | | | | | | | | | | |
| **SOIL pH**[1/]<br>pH status of the soil for the upper 4" rooting zone best fits: | | | | | | | | | | | | | | | | | | | | | | | | |
| **1**<br>Lime never applied: pH<4.5 | **2**<br>Lime every 10+yrs; pH=4.5-5.0 | **3**<br>Lime every 6-7 yrs; pH=5.1-5.5 | **4**<br>Lime every 4-5 yrs; pH=5.6-6.0 | **5**<br>Lime every 2-3 yrs; pH=6.0-7.3 | | | | | | | | | | | | | | | | | | | | |
| **SEVERITY OF USE**<br>Degree of forage removal is: | | | | | | | | | | | | | | | | | | | | | | | | |
| **1**<br>Grazed <1"continuously | **2**<br>Grazed <3"continuously | **3**<br>Grazed <1" Monthly | **4**<br>Grazed <3" Monthly | **5**<br>Optimum | | | | | | | | | | | | | | | | | | | | |
| **SITE ADAPTATION OF DESIRED SPECIES**<br>Long term climate and natural soil characteristics play major role in adaptation; rank site for desired species. | | | | | | | | | | | | | | | | | | | | | | | | |
| **1**<br>Very Poor | **2**<br>Poor | **3**<br>Good | **4**<br>Very Good | **5**<br>Excellent | | | | | | | | | | | | | | | | | | | | |
| **CLIMATIC STRESSES**<br>Degree of plant stress due to recent weather effects is: | | | | | | | | | | | | | | | | | | | | | | | | |
| **1**<br>Very Severe | **2**<br>Severe | **3**<br>Moderate | **4**<br>Slight | **5**<br>None | | | | | | | | | | | | | | | | | | | | |
| **INSECTS & DISEASE PRESSURE**<br>Level of plant stress due to insect or disease pressure is: | | | | | | | | | | | | | | | | | | | | | | | | |
| **1**<br>Severe | **2**<br>Threshold | **3**<br><Threshold | **4**<br>Slight | **5**<br>None | | | | | | | | | | | | | | | | | | | | |
| **EARTHWORM & DUNG BEETLE ACTIVITY**<br>This category is not an official part of PCS, but will help characterize pastures: | | | | | | | | | | | | | | | | | | | | | | | | |
| **1**<br>None | **2**<br>Few & Scattered | **3**<br>Several | **4**<br>Many | **5**<br>Optimum | | | | | | | | | | | | | | | | | | | | |

**General management changes based on overall score for individual pasture or whole farm.**

| Overall Pasture Condition Score | Individual Indicator Score | Management Change Suggested |
|---|---|---|
| **46 to 50** | **5** | Few or no changes in management needed to address resource and productivity concerns. |
| **36 to 45** | **4** | Minor changes in management would enhance resource and productivity concerns. |
| **26 to 35** | **3** | Improvements would significantly benefit resource conservation and productivity. |
| **16 to 25** | **2** | Significant management changes needed to address resource and productivity concerns. |
| **10 to 15** | **1** | Major effort required in time, management and expenses to address resource and productivity concerns. |

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**Modified by James T. Green, Jr., NRCS-NC. July 2012.**

The following list may be helpful as the planner and client evaluate pasture condition. Also realize that this list is mainly directed at what is useful for domestic livestock production. If wildlife is a goal on the farm other plants would have to be considered and some of those on this list would be moved into a different category

| Plants found in Pastures of NC | |
|---|---|
| **Desirable Species** | |
| **Functional Group 1; Cool Season Grasses** | **Functional Group 2; Warm Season Grasses** |
| Bluegrass, Ky. | Bahiagrass |
| Fescue, tall | Bermudagrass, hybrid or improved seed type |
| Orchardgrass | Bluestem, Big |
| Red Top | Bluestem, Little |
| Reed Canarygrass | Cheat grass |
| Rescuegrass (also call Prairie grass) "Matua" | Coastal panic, atlantic |
| Ryegrass, annual | Crabgrass |
| Ryegrass, Perennial | Dallisgrass |
| Smallgrains (barley, oats, rye, triticale, wheat) | Eastern gamagrass |
| Timothy | Indiangrass |
| **Functional Group 3; Legumes** | Johnsongrass |
| Alfalfa | Millet, Browntop |
| Clover, arrowleaf | Millet, Foxtail |
| Clover, ball | Millet, Pearl |
| Clover, Crimson | Sorghum-sudangrass hybrids |
| Clover, Red | Sudangrass |
| Clover, Subterranean | Switchgrass |
| Clover, White (ladino and intermediates) | |
| Lespedeza, Kobe | **Functional Group 4; Forbs** |
| Lespedeza, Korean | Brassicas (i.e. Rape, Kale, Turnips) |
| Lespedeza, Sericea | Chicory |
| Vetch, Common | |
| Vetch, Hairy | |
| **Less Desirable Species** | |
| **Intermediate Grasses** | **Intermediate Legumes** |
| Barnyardgrass | Black Medic |
| Bermudagrass, common | Clover, Hop |
| Carpetgrass | Clover, Rabbitsfoot |
| Cheatgrass | Clover, White Dutch |
| Nutsedge | Florida beggarweed |
| Signalgrass, broadleaf | Kudzu |
| **Intermediate Forbs** | |
| Chickweed | |
| Dandelion | |
| **Undesirable species (not peferred by animals but can be grazed with heavy stock density)** | |
| **Undesirable Grasses/Sedges/Rushes** | **Undesirable Forbs** |
| Bluegrass, annual (poa anna) | Bitter sneezeweed |
| Broomsedge | Brambles (blackberry, dewberry, greenbriar) |
| Fescue, rattail | Buttercup |
| Foxtail, (giant, green or yellow) | Carpet weed |
| Goosegrass | Cocklebur |
| Japanese stiltgrass (Microstegium vimineum) | Cudweed |
| Little barley | Dock (broadleaf and curly) |
| Nimblewill | Dogfennel (cypress weed) |
| Nutsedge | Goldenrod |
| Panicum, fall | Hemp dogbane |
| Purpletop (Tridens flavus) | Henbit |
| Rushes, most types | Horsenettle |
| Sweet vernalgrass | Lambs quarter |
| Vasey grass | Marestail (horseweed) |
| Velvetgrass | Passion flower |
| | Perilla mint |
| | Plaintains (buckhorn, narrowleaf, broad) |
| | Pokeweed |
| | Ragweed |
| | Sicklepod |
| | Spiny amaranth |
| | Thistles (musk and many others) |
| | White snakeroot |
| | Yellow Crownbeard |

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